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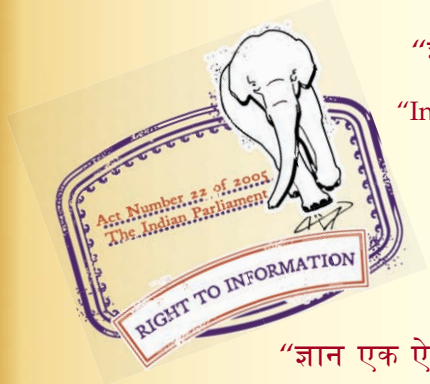
IS 10974-4 (1984): Code for hygienic conditions for production transport, storage and distribution of indigenous milk products, Part 4: Frozen products, KULFI [FAD 15: Food Hygiene, Safety Management and Other Systems]



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"Knowledge is such a treasure which cannot be stolen"

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CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

PART 4 FROZEN PRODUCTS *KULFI*

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CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

PART 4 FROZEN PRODUCTS *KULFI*

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Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

PART 4 FROZEN PRODUCTS *KULFI*

0. FOREWORD

0.1 This Indian Standard (Part 4) was adopted by the Indian Standards Institution on 5 March 1984, after the draft finalized by the Food Hygiene Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Indigenous milk products, such as *KHOA*, *KHOA* based sweets, *DAHI*, *RASGOLLA*, *CHHANA* are produced in large quantities in India. It has been often observed that proper hygienic conditions are not maintained in production, transport, storage and distribution of these indigenous milk products and there is a considerable scope for improving the hygienic conditions in this respect. Unless proper hygienic norms are adopted, the consumption of such indigenous milk products may be a potential health hazard to the consumer.

0.3 As the process of production, handling, transport, storage and distribution of various indigenous milk products differ very widely, codes of hygienic conditions for different milk products are being published in parts, Part 1 covers hygienic conditions for production, transport, storage and distribution of *KHOA* and *KHOA* based sweets, Part 2 covers *DAHI*, Part 3 covers *CHHANA* and *CHHANA* based sweetmeats, and Part 5 covers *SHRIKHAND*.

0.4 *KULFI* is an indigenous ice cream product prepared by condensing milk to half its volume by heating, adding sugar during boiling and various nuts, *MALAI* and flavour after cooling and finally freezing the mixture in small moulds.

0.5 Traditionally, cow, buffalo or mixed milk either as such or skimmed partially, is concentrated in a large open pan (*KADAHI*, cauldron) over direct flame. After cooling the concentrate for a while, sugar is added, followed by addition of other ingredients. Alternatively, *KHOA*

or skim-milk powder is added to boiled and cooled milk and mixed prior to addition of additives. This mixture is filled in moulds, capped and caps sealed with wheat dough and finally frozen by immersion in salt-ice mixture in an earthen pitcher by shaking it to and fro. The frozen product is consumed either as such or alongwith added flavours, *SHERBET, SEMIYA* and a jelly like substance popularly known as *FALUDA*. Since the product contains all the essential nutrients of milk in a concentrated form and added starchy materials, it provides an ideal medium for rapid proliferation of most micro-organisms. During its preparation there is no protection against contamination from extraneous matter, such as dust, ash, flies and pests. It may, hence, become a potential health hazard and a source of food poisoning. It is, therefore, necessary to take utmost precautions to protect the commodity from all possible source of contamination during production, storage and distribution. This standard provides guidlines for maintaining optimum hygienic conditions in production, storage and distribution of *KULFI*.

0.6 It is expected that this standard would be of considerable assistance to local health authorities in enforcing proper hygienic conditions in the interest of public health.

0.7 This code is subject to the provisions of the *Prevention of Food Adulteration Act*, 1954 and the rules framed thereunder as ammended from time to time and other local regulation.

0.8 While preparing this standard, considerable assistance has been derived from the National Dairy Research Institute, Karnal.

1. SCOPE

1.1 This code (Part 4) prescribes the hygienic conditions and practices for production, storage, transportation and distribution of *KULFI* and the like milk products.

2. SITE AND PREMISES

2.1 Site and premises should be as given in 2 of IS : 10974 (Part 1) - 1984*.

3. RAW MATERIAL HANDLING

3.1 Raw material handling should be as given in 4 of IS : 2491-1972†.

*Code for hygienic conditions for production, transport, storage and distribution of indigenous milk products: Part 1 *KHOA* and *KHOA* based sweets.

†Code for hygienic conditions for food processing units (*first revision*).

4. FACTORY AND PROCESSING HYGIENE

4.1 Factory and processing hygiene should be as given in 5 of IS : 2491-1972*.

5. EQUIPMENTS

5.1 Heating Pans

5.1.1 *KADAHIES* (heating pans) of iron are generally used in small scale operation for heating milk on open fire for preparing *KULFI*. *KADAHIES* shall be constructed with hemispherical or dished bottom and should have rigid welded handles. The joints in the pan shall be welded and finished smooth. The component parts shall not be riveted. The *KADAHI* may be of 20 to 25 litres capacity.

5.2 Heating of Milk

5.2.1 Ovens of different types are used for heating of milk in the small scale production of *KULFI*. Wood, charcoal, coal, cow dung cake, kerosene or gas, are normally used as fuel.

5.2.2 When open hearth is used, the fuel used for burning shoud not give rise to smoke or obnoxious odour which may be absorbed by the product. Adequate protection must be provided to ventilate the combustion products and to prevent the ash and unburnt material coming in contact with the product.

5.2.3 Where heating is done by steam in large scale operations, the pan shall conform to IS : 2829-1979†. Stainless steel jacketted, round bottomed open pan provided with steam line, steam control and safety valves, pressure gauge and cold water line in the jackets, with steam trap and air outlet may be used. There should be arrangement for tilting the pan and also keeping it fixed in normal position.

5.3 Stirrers — During heating of milk, the contents in the heating pan are constantly stirred to facilitate evaporation of moisture and to prevent charring of casein. For this purpose, steel, hand operated stirrers are generally used. Stainless steel or aluminium alloy stirrers with flattened end on one side may preferably be used in place of iron. Suitable arrangement may be made on the brim of the heating pan for resting of stirrers.

5.4 All the components and metallic parts which come in contact with milk shall be constructed from iron or stainless steel conforming

*Code for hygienic conditions for food processing units (*first revision*).

†Specification for steam-jacketed *GHEE* pans (stainless steel) (*first revision*).

to grade 07 Cr 18 Ni 9 of IS : 1570 (Part 5)-1972* or aluminium conforming to IS Designation 31000 (NS3), 52000 (NS4) or 53000 (NS5) of IS : 737-1974†.

5.5 Copper and its alloys, cadmium, lead and zinc shall not come in contact with milk at any stage.

5.6 Non metallic materials, if used for sealing or gasketting shall be nontoxic, non absorbent and shall not impart any flavour and should be inert to milk, *KULFI* or any cleaning solution normally used.

5.7 Fabrication — All surfaces coming in contact with milk or *KULFI* shall be finished smooth, free from pits, crevices or other constructional features which might inhibit satisfactory sanitation.

5.8 Containers (Moulds, Cones)

5.8.1 Usually galvanized iron sheet moulds are used. They have a conical shape and diameter of about 2·5 cm at the bottom and 5·0 cm at the top with a length of about 7·5 cm and nicely fitting lids. This size may vary with the requirements of the manufacturer.

5.8.1.1 Plastic containers of above size also are now in vogue—which are comparatively more hygienical.

5.8.2 Cleaning and sterilization of moulds (*see* IS : 2802-1964‡).

5.9 Freezing Equipment

5.9.1 An earthen pot (pitcher) of about 30 to 40 litre capacity which can freeze about 50 to 60 moulds at a time is generally used. It shall be thoroughly cleaned, washed and sanitized, before and after every use everyday using a good brush (preferably of synthetic bristles), and an odourless bactericidal solution, such as quaternary ammonium compounds.

5.9.2 *Salt-Ice Mixture* — A good quantity of a chipped ice with about 20 percent of common salt, or some times rock salt, is added into the pitcher. The salt and ice shall be of good grade free from visible impurities, dust, and hygienically collected. Ice used shall be manufactured from potable water.

5.9.3 Wheat flour used for preparing the dough for sealing the lids of moulds with the main body shall be made from a good quality wheat

*Schedules for wrought steels: Part 5 Stainless and heat resisting steel (*first revision*).

†Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*second revision*).

‡Specification for ice-cream.

which would have been floured and stored under hygienical conditions. Alternatively, cellophane tape or medicated adhesive tape may be used for proper and leakproof sealing.

6. RECEPTION DOCK

6.1 Milk brought to the factory shall be received in an airy spacious enclosure. Only fresh, sweet, clean milk free from colostrum and in every way fit for human consumption shall be used. The milk shall be free from adulterants, preservatives and any matter foreign to milk.

7. WATER

7.1 Water used in the preparation of *KULFI* shall be free from micro-organisms likely to cause disease.

8. SWEETENING AGENT

8.1 Cane sugar is the most commonly used sweetening agent in the preparation of milk based sweets. Sugar used should be of good quality (*see* IS : 1679-1960*).

9. OTHER INGREDIENTS

9.1 *KHOA*, if used to concentrate the milk, shall conform to IS : 4883-1980†; whereas the skim-milk powder, if used, shall conform to IS : 1165-1975‡.

9.1.1 In homes there is a tendency to use infant milk foods for concentrating milk. In such case it shall conform to IS : 1547-1968§.

9.2 Additives, like condiments and spices, used for the preparation of *KULFI* shall conform to the specification given in IS : 5550-1970||.

9.3 *MAIDA* used in the preparation of *SEMIYA* shall conform to IS : 1009-1979¶.

9.4 *FALUDA* to be used as a supplement to the *KULFI* shall be prepared from a good food grade arrowroot starch stored in a dry cool place protected from insects and rodents.

9.5 Flavouring Materials — Various artificial or imitation flavours are added to *KULFI* mix. As most of them are prepared and maintained in the form of alcoholic solutions and used in small amounts, they

*Specification for sugar used in food preservation industry.

†Specification for *KHOA* (*first revision*).

‡Specification for milk powder (*second revision*).

§Specification for infant milk foods (*first revision*).

||Specification for *BURFI*.

¶Specification for *MAIDA* for general purposes (*second revision*).

are not considered to be significant sources of contamination. Aqueous flavour extracts may be sanitized by pasteurization at 63°C for 30 minutes without any serious deterioration in the flavour.

9.6 Fruits and fruit juices to be added shall be of good quality and fruits be washed very thoroughly in potassium permanganate solution. They should be pealed with clean, rust free, preferably stainless steel knives (IS : 2498-1983*) and cut or mashed in clean and hygienic conditions. The juice shall be extracted in good, clean and sanitized vessels.

9.7 *SHERBETS* shall be made from sugar as mentioned in **8.**

9.8 In case of *MALAI-KI-BARAF* where *MALAI* — the creamy layer formed on the surface of milk after boiling and then left to cool undisturbed—forms the chief ingredient. The *MALAI* shall be collected in clean utensils. The colourings to be added shall be of food grade permitted under of *Prevention of Food Adulteration Act*, 1954 and should preferably be added prior to giving final heat treatment.

10. COOLING OF MIXTURE

10.1 *KULFI* mixture shall be allowed to cool for a while at the room temperature before filling into cones (moulds).

10.2 Filling in Cones — The *KULFI* mixture shall be filled up to the brim in the cones, covered tightly with the lid and sealed with a thick layer of dough (*see* **5.9.3**). Rubber bands may also be used for fastening the lids before applying dough.

10.3 Freezing the Filled Cones — The cones shall be transferred to the ice-salt mixture in the pitcher without losing time. The pitcher shall be shaken to and fro thoroughly to bring about effective freezing in a short time.

11. STORAGE OF *KULFI*

11.1 The finished product shall be allowed to remain in the same pitcher or, transferred to, deep freeze at — 20°C for storage at the manufacturer's premises.

12. TRANSPORT

12.1 The *KULFI* should be transported by suitable system, in the pitcher or in an ice-chest containing ice-salt mixture. The transport vehicle shall be clean and made such as not to give any jerks during movement.

*Specification for cheese knife.

13. STORAGE AND SALE OF *KULFI*

13.1 The finished product shall always be stored in the cones kept in ice-salt mixture which should be replenished from time to time. It shall not be carried over to the next day.

13.2 The push cart used for storing and selling *KULFI* shall have a metallic roof and the walls made of good grade glass panes. It shall be provided with a sliding window for removing *KULFI* from the ice chest. Utmost care shall be taken to protect the inside of the push carts from roadside dust, flies, other insects, birds and rodents.

13.3 The knife (*see* IS : 2498-1963*) used to scrape away the dough from the cone and open its cap and subsequently cut the *KULFI* into pieces shall be made from good quality mild steel or stainless steel and kept clean and dry. It shall be sanitized in quaternary ammonium compounds or iodophor solution.

13.4 The plates and spoons used for serving the preparation shall be thoroughly cleaned and rinsed before use and given a dip or two in a sanitizer solution, for example, quarternary ammonium compound (50 ppm), iodophor (5 ppm), or chlorine solution (15-20 ppm) just prior to adding *KULFI* on to the plate.

13.4.1 The used utensils shall be washed in fresh water, preferably running tap water, using soap or detergent solution and then drained and dried.

13.5 Suitable arrangements shall be made for proper drainage and disposal of wash and waste water (*see* **3.12** of IS : 2491-1972†).

14. OPERATION PRACTICES AND PRODUCTION REQUIREMENTS

14.1 Operation practices and production requirements should be as given in **14** of IS : 2491-1972†.

15. EMPLOYEE HYGIENE

15.1 Employee hygiene should be as given in **13** of IS : (Part 1) - 1984‡.

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*Specificatin for cheese knife.

†Code for hygienic conditions for food processing units (*first revision*).

‡Code for hygienic conditions for production, transport, storage and distribution of indigenous milk products: Part 1 *KHOA* and *KHOA* based sweets.

(*Continued from page* 2)

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AMENDMENT NO. 1 MAY 2002
TO
IS 10974 (Part 4) : 1984 CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

Part 4 FROZEN PRODUCTS *KULFI*

(*Page* 4, *clause* **3.1**, *and page* 5, *clause* **4.1**) — 'IS 2491 : 1998' *for* 'IS 2491 : 1972'.

[*Page* 4, *footnote with dagger* (†) *mark*] — Substitute the following for the existing footnote:

'†Food hygiene — General Priniciples — Code of practice (*second revision*).'

[*Page* 5, *footnote with aesterisk* (*) *mark*] — Substitute the following for the existing footnote:

*Food hygiene — General Priniciples — Code of practice (*second revision*).'

(*Page* 6, *clause* **5.9.1**) — Insert the following sentence at the end:

'For large scale operations, hardening chamber may also be used.'

(*Page* 9, *clause* **13.1**, *last sentence*) — Substitute the following for the existing:

'The product should always be kept in frozen conditions and shall preferably not be carried over to the next day.'

(*Page* 9 *clause* **13.2**) — Substitute the following for the existing:

'**13.2** The push cart used for storing and selling of *KULFI* shall have a metallic/unbreakable polycarbonate/reinforced plastic roof and a closed chamber or deep freezer with suitable opening.'

(FAD 45)

Reprography Unit, BIS, New Delhi, India